UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/771,360	01/26/2001	Robert M. Caruso	6909-4	6089

7590 01/02/2004	**EXAMINER**
Marger Johnson & McCollom, P.C.	SUKHAPHADHANA, CHRISTOPHER T
1030 S.W. Morrison Street	
Portland, OR 97205	

ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 01/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-46_ is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-13,15-28,30-39 and 42-46_ is/are rejected.

7)☒ Claim(s) _14,29,40 and 41_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _26 January 2001_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
　　a)☐ All b)☐ Some * c)☐ None of:
　　　1.☐ Certified copies of the priority documents have been received.
　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.
　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
　　　　application from the International Bureau (PCT Rule 17.2(a)).
　　* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application)
since a specific reference was included in the first sentence of the specification or in an Application Data Sheet.
37 CFR 1.78.
　　a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific
reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

4)☒ Interview Summary (PTO-413) Paper No(s). _4_ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: .

DETAILED ACTION

Election/Restrictions

1.   Examiner contacted Applicant on 03 November 2003 via telephone regarding a

restriction requirement. Applicant elected Group I: claims 1-9, 15-26 and 31-46 over Group II:

claims 10-14 and 27-30 without traverse (See Interview Summary, paper no 4).

2.   Upon further consideration, Examiner **withdraws** the restriction requirement. The

presence of at least claims 37 and 38 acts to link Group I to Group II, thus necessitating the

search of Group II in conjunction with Group I.

Specification

3.   The disclosure is objected to because of the following informalities: Specification, page

4, lines 29-30 mentions an **Appendix A**. Examiner has been unable to locate an Appendix as

described. Consider including in the next mailing a copy of the Appendix with a proper

statement regarding no new material having been added, or consider removal of the mention of

the Appendix from the specification.

Appropriate correction is required.

Claim Objections

4.   **Claims 8 and 26** are objected to because of the following informalities: In regards to

claim 8, repetition of "encoding the pixel value" is redundant. Consider removing the first

repetition and amending the claim to read --wherein encoding the pixel color further includes--.

In regards to **claim 26**, on line 10, consider changing "an compressor" to --a compressor--.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

5.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6.   **Claims 45 and 46** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

7.   **Claims 45 and 46** are directed to a compilation or mere arrangement of data as described in MPEP 2106 IV B 1 (b). Such arrangements of data do not exhibit any functional interrelationship with the way in which computing processes are performed and do not constitute a statutory process, machine, manufacture or composition of matter. Note also the arrangements of data, considered as non-functional descriptive material, cannot alone provide the practical application for the manufacture (i.e. embodiment in a memory).

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9.   **Claims 1-9, 22-27, 36, 38, and 42-45** are rejected under 35 U.S.C. 102(e) as being

anticipated by Ratnakar (U.S. Patent 6,038,346, newly cited, "Ratnakar").

10.   In regards to **claim 1**, Ratnakar discloses a method (Fig 3) for compressing an indexed

color image on a computer, the method comprising: identifying ($I(i,j)$, Fig 2 and col 5, line 7) a

pixel color for a pixel; identifying (col 5, line 13) a left neighbor color for a left neighbor of the

pixel; identifying (col 5, line 16) an upper neighbor for an upper neighbor of the pixel;

comparing (col 5, Table 1) the pixel color with the left neighbor color and the upper neighbor

color; encoding (col 6, line 60) the pixel color based on the comparison using a probability

model; and updating (col 6, line 56) the probability model.

11.   In regards to **claim 2**, Ratnakar further discloses in col 5, lines 4-5, the method further

comprising encoding the left neighbor color for the left neighbor of the pixel and the upper

neighbor color for the upper neighbor of the pixel according to the probability model.

12.   In regards to **claim 3**, Ratnakar further discloses in ref no 111, Fig 4, and col 6, line 56,

updating the model including changing a probability value regarding the relationship between the

pixel color and the left neighbor color and the upper neighbor color.

13.   In regards to **claim 4**, Ratnakar further discloses in col 7, line 6, encoding the pixel color

including encoding the pixel color based on the comparison using a probability value in the

probability model regarding the relationship between the pixel color and the left neighbor color

and the upper neighbor color.

14.   In regards to **claim 5**, Ratnakar further discloses in col 6, line 60, encoding the pixel

color further including selecting one of a plurality of probability values in the probability model

regarding the relationship between the pixel color and the left neighbor color and the upper

neighbor color.

15.   In regards to **claim 6**, Ratnakar further discloses in col 4, line 38, and OTHER,

SUCCESS, and ANOMALY in col 8, and TrendList and AnomalyList in col 10, encoding the

pixel color further includes selecting an index from a color palette according to the results of

comparing the pixel color to the left neighbor color and the upper neighbor color.

16.   In regards to **claim 7**, Ratnakar further discloses in col 7, line 35, encoding the pixel

color further includes compressing the selected index from the color palette.

17.   In regards to **claim 8**, Ratnakar further discloses in ref no 111, Fig 4, encoding the pixel

value further including encoding the probability value.

18.   In regards to **claim 9**, Ratnakar further discloses in col 7-8, Table 2 and col 7, line 6, the

method further comprising selecting the probability model from a probability set.

19.   In regards to **claims 22, 23, 24, and 26**, all the elements set forth in these claims have

been addressed in the above arguments of claims 1, 3, 5, and 9, respectively.

20.   In regards to **claim 25**, Ratnakar further discloses the program designed to store the

compressed index color image in a data structure in memory, the data structure including:

dimensions for the image (col 9, line 27); a color palette for the image (col 8, OTHER,

ANOMALY, and col 10, TrendList and AnomalyList); a background color of the image (col 9,

line 42, I(0,0)); and at least one compressed block (Fig 1, the whole image), the compressed

block including a location for the block (col 9, line 42, I(0,0)), dimensions for the block (col 9,

line 27, H, W), and at least one pixel compressed using a dynamic probability model (col 9, line

61).

21.   In regards to **claim 27**, Ratnakar discloses a computer-readable medium (Fig 5)

containing a program to compress an indexed color image on a computer, the program

comprising: detection software to detect a background color of the image (col 9, line 42, I(0,0));

selection software (col 9, lines 39-40, i and j) to select a part of the image that includes a color

other than the background color; and compression software (col 9, lines 61 and 63) to compress

the selected part of the image.

22.   In regards to **claim 36**, Ratnakar discloses an apparatus (Fig 5) comprising: a computer

(ref no 200, Fig 5) including a processor (ref no 201, Fig 5) and a memory (ref no 211, 203, 210,

etc); an indexed color image loaded in the memory of the computer (ref no 11, Fig 1, and col 4,

line 66); a color palette specifying colors in the image (col 4, line 38 and col 10, TrendList and

AnomalyList); a probability model (col 9, line 17 – col 10, line 12) predicting a probability value

of a color of a pixel given a color of a left neighbor of the pixel and a color of an upper neighbor

of the pixel; and update module (col 10, lines 8-11) designed to update the probability value in

the probability model given the color of the pixel, the color of the left neighbor of the pixel, and

the color of the upper neighbor of the pixel; and a compressor (col 9, lines 61 and 64, and col 10,

line 16) designed to compress the color of the pixel using the color palette.

23.   In regards to **claim 38**, Ratnakar further discloses the image including a background color

(col 9, line 42, I(0,0)); and the apparatus further comprising a block locator (col 9, lines 39-40, i

and j) the block including at least one pixel with a color other than the background color.

24.   In regards to **claim 42**, Ratnakar further discloses the apparatus comprising

decompression means (code spanning col 10-11) for decompressing a compressed image

compressed on the computer.

25.   In regards to **claim 43**, Ratnakar further discloses in ref no 25, Fig 3, and col 15, lines 14-24, the decompression means operable on a second computer; and the apparatus further comprising transmission means for transmitting the compressed image from the computer to a second computer.

26.   In regards to **claim 44**, all the additional elements set forth in this claim have been addressed in the argument of claim 9 above.

27.   In regards to **claim 45**, all the elements set forth in this claim have been addressed above in the argument of claim 25.

28.   **Claims 10-13 and 27-28** are rejected under 35 U.S.C. 102(e) as being anticipated by Suzuki et al (U.S. Patent 6,118,552, newly cited, "Suzuki").

29.   In regards to **claim 10**, Suzuki discloses a method (Fig 7) for compressing an indexed color image on a computer, the method comprising: detecting a background color (col 9, line 5) of the image; selecting (Fig 3 and col 9, line 8) a part of the image that includes a color other than the background color; and compressing (col 9, line 32) the selected part of the image.

30.   In regards to **claim 11**, Suzuki further discloses compressing the selected part of the image including: locating at least one block (col 9, line 8 and Fig 3) in the image that includes a pixel with a color other than the background color; and compressing (col 9, lines 14 and 32) each block separately.

31.   In regards to **claim 12**, Suzuki further discloses in col 8, line 40, and col 9, line 30, and Fig 3(c), compressing the selected part of the image including storing a location, a size, and a

color for the part of the image when the part of the image includes pixels with only a single
color.

32.   In regards to **claim 13**, Suzuki further discloses compressing the selected part of the
image including: dividing the image into at least two tessellations of blocks (Fig 3), each
tessellation of blocks including at least one block (monochrome region and color region),
wherein each block includes at least one pixel with a color other than the background color and
each pixel in the image with a color other than the background color is included in exactly one
block in each tessellation; estimating a size for each tessellation (Fig 3(c), size), wherein each
block in each tessellation is compressed separately (col 9, lines 6 and 32); selecting a tessellation
with a smallest estimated size (Fig 3); and compressing each block in the selected tessellation
separately (col 9, lines 6 and 32).

33.   In regards to **claims 27 and 28**, all the elements set forth in these claims have been
addressed above in the arguments of claims 10 and 13, respectively.

Claim Rejections - 35 USC § 103

34.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

35.   **Claims 15-21 and 31-35** are rejected under 35 U.S.C. 103(a) as being unpatentable over
Ratnakar (U.S. Patent 6,038,346, cited above, "Ratnakar").

36.   **Claims 15, 16, 18, 19, and 21** are rejected as being the corresponding decompression

methods to the compression methods argued above in claims 1, 3, 5, 6, and 9, respectively. If any

further discrepancies exist, they may be resolved by referring to the pseudo-code spanning col

10-11.

37.   In regards to **claim 17**, Ratnakar further discloses in Table 1 in col 5, SUCCESS in col 7-

8, and TrendList in col 10, determining whether the probability value represents the same color

includes using the probability value in the probability model regarding the relationship between

the compressed color and the left neighbor color and the upper neighbor color.

38.   In regards to **claim 20**, Ratnakar further discloses in Table 2 in col 7-8 and AnomalyList

in col 10, selecting an index from a color palette includes decoding the selected index when the

compressed color is determined to be different from the left neighbor color and the upper

neighbor color.

39.   In regards to **claims 31-33, 34, and 35**, all the elements set forth in these claims have

been addressed in the above arguments of claims 15-17, 19, and 20, respectively.

40.   **Claims 30, 37, 39, and 46** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Ratnakar (U.S. Patent 6,038,346, cited above, "Ratnakar") as applied to above claims 27,

36, and 45, in combination with Maeda (U.S. Patent 6,512,793 B1, newly cited, "Maeda").

41.   In regards to **claim 30**, Ratnakar further discloses the program designed to store the

compressed indexed color image including: dimensions for the image (col 9, line 27); a color

palette for the image (col 8, OTHER, ANOMALY, and col 10, TrendList and AnomalyList); a

background color of the image (col 9, line 42, I(0,0)); and at least one compressed block (Fig 1,

the whole image), the compressed block including a location for the block (col 9, line 42, I(0,0)), dimensions for the block (col 9, line 27, H, W), and at least one pixel compressed using a dynamic probability model (col 9, line 61).

Ratnakar does not expressly disclose a frame marker indicating whether or not one of the frames is a distance frame.

Maeda teaches a frame marker (col 11, line 44) indicating whether or not one of the frames is a distance frame.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Ratnakar's compression into Maeda's coding because while Maeda uses DCT-based image compression, in the event that the images were palettized synthetic images, one of ordinary skill in the art would want to use Ratnakar's compression method because it is specifically designed to losslessly compress palettized synthetic images (Ratnakar, col 4, line 38).

42.   In regards to **claim 37**, Ratnakar does not expressly disclose the additional limitations as claimed.

Maeda teaches an image including a first frame and a second frame (col 11, line 44 and 55), and the apparatus further comprising a distance frame generator (col 11, line 56, motion vector) for generating a distance frame between the first and second frames of the image.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Ratnakar's compression into Maeda's coding because while Maeda uses DCT-based image compression, in the event that the images were palettized synthetic images, one of ordinary skill in the art would want to use Ratnakar's compression method because it is

specifically designed to losslessly compress palettized synthetic images (Ratnakar, col 4, line 38).

43.   In regards to **claim 39**, Ratnakar does not expressly disclose the additional limitations as claimed.

Maeda teaches an apparatus further comprising a size estimator (col 11, line 52) designed to estimate the size of the compressed image using a division of the image.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Ratnakar's compression into Maeda's coding because while Maeda uses DCT-based image compression, in the event that the images were palettized synthetic images, one of ordinary skill in the art would want to use Ratnakar's compression method because it is specifically designed to losslessly compress palettized synthetic images (Ratnakar, col 4, line 38).

44.   In regards to **claim 46**, all the additional elements set forth in this claim have been addressed in the argument of claim 37.

Allowable Subject Matter

45.   **Claims 14, 29 and 40-41** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

46.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references listed below could have been applied as prior art rejections to certain of Applicant's claims, but were not due to time constraints.

Asahi et al (U.S. Patent 5,859,926) discloses a device and method for data coding and decoding that could have been applied to at least claim 1.

Todoroki (U.S. Patent 6,327,383 B2) discloses a multi-color image encoding and decoding apparatus and method that could have been applied to at least claim 1.

Shimura et al (U.S. Patent 5,933,249) discloses an image processing apparatus and method that could have been applied to at least claim 10.

Cheng (U.S. Publication 2002/0064313 A1) discloses a rate-distortion optimization system and method for image compression that could have been applied to at least claim 10.

Kurzweil et al (U.S. Patent 6,587,583 B1) discloses a compression/decompression algorithm for image documents having text, graphical and color content that could have been applied to at least claim 10.

47.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher T. Sukhaphadhana whose telephone number is 703-306-4148. The examiner can normally be reached on 9a-4p M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh M. Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is 703-305-3800.

CTS

CTS

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